

DISCUSSION OF THE AMENDMENT

Claim 11 has been amended by lowering the maximum aliphatic diol component amount to 30.5 parts, as supported by Production Example 1, Table 1, Resin HC, at page 37 of the specification.

Claim 16 has been amended by incorporating the subject matter of Claim 17 therein; Claim 17 has been canceled. Claim 18 has been amended to depend on Claim 16 only.

No new matter is believed to have been added by the above amendment. Claims 1-16 and 18-23 are now pending in the application.

REMARKS

Due to the length of the specification herein, Applicants will cite to the paragraph number of the published patent application (PG Pub) of the present application, i.e., US 2006/0078815, when discussing the application description, rather than to page and line of the specification as filed.

As described in the specification under BACKGROUND ART ([0002]-[0012]), efforts have been, and are being, made in the prior art to prepare toners having a good combination of low temperature fixability, offset resistance, gloss, etc. properties but the results have been problematical. The various embodiments of the present invention are drawn to meeting these problems. As discussed below, the applied prior art neither discloses nor suggest the presently-claimed invention.

The rejection of Claims 11-19 under 35 U.S.C. § 103(a) as being unpatentable over JP 08-030027 (JP '027) or JP 2002-072548 (JP '548) or JP 2002-236393 (JP '393), is respectfully traversed.

Claims 11-15

Claim 11, as above-amended, is drawn to a toner linear polyester resin (a1) having at least the following two features (I) and (II):

(I) a C₃ to C₁₀ aliphatic diol component in an amount of 10 to 30.5 parts by mole with respect to 100 parts by mole of the total carboxylic acid component;

(II) a softening temperature in a range of 150 to 220°C.

The combination of features (I) and (II) is particularly important, and the above-discussed problems of the prior art cannot be successfully addressed when either one of these features is not satisfied.

In support thereof, the following comparative working examples, labeled Referential Comparative Examples 1, 2 and 3, respectively, were prepared.

Referential Comparative Example 1 was carried out using the procedures described for the preparation of Toner 3 of Example 1 herein ([0201]-[0202] and Table 3) except that Resin HA was employed instead of Resin HC. Referential Comparative Example 2 is similar, except that Resin HB was employed instead of Resin HC. The results of evaluation of the obtained toners are shown in Table A below along with the results of Toner 3 as shown in Table 3:

Table A

| | | Referential Comparative Example 1 | Referential Comparative Example 2 | Example 1 Toner 3 |
|---------------------|---|---|---|---------------------------------|
| | Ratio or mixture of resin (parts by mass) | Resin HA:resin LC = 20:80 | Resin HB:resin LC = 20:80 | Resin HC:resin LC = 20:80 |
| | C ₃ -C ₁₀ aliphatic diol component in polyester (A) (parts by mole) | 59.9 | 54.9 | 30.5 |
| Resin properties | Fixability | G | G | G |
| | Offset resistance | P | P | G |
| | Blocking resistance | G | G | G |
| | Gloss | VG | VG | VG |

As Referential Comparative Examples 1 and 2 show, if the polyester resin contains the C₃ to C₁₀ aliphatic diol component in an amount of more than 30.5 parts by mole, the offset resistance is poor.

When the polyester resin contains the C₃ to C₁₀ aliphatic diol component in an amount of less than 10 parts by mole, as described in Comparative Example 1 herein for the preparation of Toner C3 (Resin HH) ([0207]-[0208] and Table 6), the fixability is poor.

Thus, the above demonstrates the importance of feature (I).

If the softening temperature does not fall within the specified range for feature (II), the above-discussed problems cannot be successfully addressed, even if feature (I) is satisfied, as now discussed.

Referential Comparative Example 3 was carried out using the procedures described for Production Example 1 herein ([0197]-[0198] and Table 1) using the monomer prepared composition as shown in Table B below to obtain Resin HM with a softening temperature of 130°C as shown in Table B, and then the procedures of Example 1 herein ([0201]-[0202] and Table 3) were carried out for the preparation of Toner 15 except that the obtained Resin HM was employed instead of Resin HI. The results of evaluation of the obtained toner are shown in Table C below:

Table B

| | | | | Resin HM |
|------------------------------|-----------------------------------|--|------------------------|----------|
| Monomer Prepared composition | Acid component (parts by mole) | | Terephthalic acid | 65 |
| | | | Isophthalic acid | 20 |
| | | | Adipic acid | 15 |
| | Alcohol component (parts by mole) | C ₃ -C ₁₀ aliphatic diol component (parts by mole) | Cyclohexane dimethanol | 15 |
| | | Other component | Ethylene glycol | 125 |
| Resin composition | Acid component (parts by mole) | | Terephthalic acid | 64.9 |
| | | | Isophthalic acid | 19.9 |
| | | | Adipic acid | 15.2 |
| | Alcohol component (parts by mole) | C ₃ -C ₁₀ aliphatic diol component (parts by mole) | Cyclohexane dimethanol | 15.0 |
| | | Other component | Ethylene glycol | 87.3 |
| Resin Properties | Softening temperature (°C) | | | 130 |
| | Tg (°C) | | | 48.1 |
| | Acid value (mgKOH/g) | | | 3.3 |
| | Mass average molecular weight Mw | | | 23,000 |
| | Melting point (°C) | | | None |

Table C

| | | Referential Example 3 |
|------------------|---|----------------------------|
| | Ratio of mixture of resin (parts by mass) | Resin HM: resin LG = 20:80 |
| | C ₃ -C ₁₀ aliphatic diol component in polyester (A) (parts by mole) | 15.0 |
| Resin properties | Fixability | VG |
| | Offset resistance | P |
| | Blocking resistance | F |
| | Gloss | VG |

In the toner of Referential Comparative Example 3, the offset resistance is poor since the softening temperature of the polyester resin is 130°C.

None of the applied prior art could have predicted the above-discussed results.

JP '027 discloses a toner comprising a polyester resin with a preferred softening temperature of 80 to 120°C [0033] and that the resulting toner may exhibit poor low temperature fixability if the softening temperature is above this range [0034]. Thus, JP '027 actually teaches away from the present invention. Clearly, JP '027 neither discloses nor suggests the present invention.

JP '548 discloses a toner but is silent regarding an amount of a C₃ to C₁₀ aliphatic diol component to be used. Of the polyester resins described therein, the polyester resins of Synthesis Examples 2, 3 and 5 (Table 1) contain a C₃ to C₁₀ aliphatic diol component. The amounts thereof can be calculated as follows with respect to 100 parts by mole of the total carboxylic acid component:

Synthesis Example 2:

NDA (naphthalenedicarboxylic acid, molecular weight 216): 130 parts by weight, i.e. 32 parts by mole

TPA (terephthalic acid, molecular weight 166): 183 parts by weight, i.e. 58 parts by mole

DSA (dodecenylsuccinic acid, molecular weight 284) : 57 parts by weight, i.e. 10 parts by mole

EG (ethylene glycol, molecular weight 62) : 31 parts by weight, i.e. 26 parts by mole

NPG (neopentyl glycol, molecular weight 104) : 104 parts by weight, i.e. 53 parts by mole

CHDM (cyclohexane dimethanol, molecular weight 144) : 72 parts by weight, i.e. 26 parts by mole.

Thus, the amount of the C₃ to C₁₀ aliphatic diol component in the polyester resin of Synthesis Example 2 is 79 parts by mole (NPG+CHDM).

Synthesis Example 3:

NDA (naphthalenedicarboxylic acid, molecular weight 216) : 130 parts by weight, i.e. 32 parts by mole

TPA (terephthalic acid, molecular weight 166) : 183 parts by weight, i.e. 58 parts by mole

DSA (dodecenylsuccinic acid, molecular weight 284) : 57 parts by weight, i.e. 10 parts by mole

NPG (neopentyl glycol, molecular weight 104) : 104 parts by weight, i.e. 53 parts by mole

DEG (diethylene glycol, molecular weight 106) : 53 parts by weight, i.e. 26 parts by mole

CHDM (cyclohexane dimethanol, molecular weight 144) : 72 parts by weight, i.e. 26 parts by mole.

Thus, the amount of the C₃ to C₁₀ aliphatic diol component in the polyester resin of Synthesis Example 3 is 105 parts by mole (NPG+DEG+CHDM).

Synthesis Example 5:

NDA (naphthalenedicarboxylic acid, molecular weight 216) : 173 parts by weight, i.e. 42 parts by mole

TPA (terephthalic acid, molecular weight 166) : 133 parts by weight, i.e. 42 parts by mole

IPA (isophthalic acid, molecular weight 166) : 50 parts by weight, i.e. 16 parts by mole

NPG (neopentyl glycol, molecular weight 104) : 104 parts by weight, i.e. 53 parts by mole

DPG (dipropylene glycol, molecular weight 134) : 40 parts by weight, i.e. 16 parts by mole

CHDM (cyclohexane dimethanol, molecular weight 144) : 86 parts by weight, i.e. 32 parts by mole

DEC (1, 2-decanediol, molecular weight 174) : 35 parts by weight, i.e. 11 parts by mole.

Thus, the amount of the C₃ to C₁₀ aliphatic diol component in the polyester resin of Synthesis Example 5 is 112 parts by mole (NPG+DPG+CHDM+DEC).

In sum, JP '548 neither discloses nor suggests employing the C₃ to C₁₀ aliphatic diol component in an amount within the 10 to 30.5 parts by mole range.

Further, the polyester resins of these synthesis examples have at most a softening temperature of 101 to 108°C and thus, JP '548 neither discloses nor suggests polyester resins having a softening temperature of 150 to 220°C.

Clearly, JP '548 neither discloses nor suggests the present invention.

JP '393 discloses a toner but there is no description regarding the softening point of the polyester resin to be used as a binder resin, nor is there any description that the amount of the C₃ to C₁₀ aliphatic diol component contained in the polyester resin should be within the range of 10 to 30.5 parts by mole. For example, JP '393 discloses ([0058]-[0063]) the following polyester resins and the amounts of the C₃ to C₁₀ aliphatic diol component in these polyester resins can be calculated as follows with respect to 100 parts by mole of the total acid component:

Resin (1):

Terephthalic acid (molecular weight 166) : 664 parts by weight, i.e. 100 parts by mole
Ethylene glycol (molecular weight 62) : 54 parts by weight, i.e. 22 parts by mole
Propylene glycol (molecular weight 76) : 152 parts by weight, i.e. 50 parts by mole
Neopentyl glycol (molecular weight 104) : 150 parts by weight, i.e. 36 parts by mole.

Thus, the amount of the C₃ to C₁₀ aliphatic diol component in the Resin (1) is 86 parts by mole (propylene glycol + neopentyl glycol).

Resin (2):

Terephthalic acid (molecular weight 166) : 664 parts by weight, i.e. 100 parts by mole
Propylene glycol (molecular weight 76) : 152 parts by weight, i.e. 50 parts by mole
Cyclohexane dimethanol (molecular weight 144) : 145 parts by weight, i.e. 25 parts by mole
Neopentyl glycol (molecular weight 104) : 150 parts by weight, i.e. 36 parts by mole.

Thus, the amount of the C₃ to C₁₀ aliphatic diol component in the Resin (2) is 111 parts by mole (propylene glycol + cyclohexane dimethanol + neopentyl glycol).

Resin (3):

Terephthalic acid (molecular weight 166) 498 parts by weight, i.e. 100 parts by mole
Ethylene glycol (molecular weight 62) : 75 parts by weight, i.e. 40 parts by mole
Diethylene glycol (molecular weight 106) 32 parts by weight, i.e. 10 parts by mole
Neopentyl glycol (molecular weight 104) 180 parts by weight, i.e. 58 parts by mole.

Thus, the amount of the C₃ to C₁₀ aliphatic diol component in the Resin (3) is 58 parts by mole (neopentyl glycol).

Resin (4):

Terephthalic acid (molecular weight 166) : 664 parts by weight, i.e. 100 parts by mole
Neopentyl glycol (molecular weight 104) : 120 parts by weight, i.e. 29 parts by mole
Ethylene glycol (molecular weight 62) : 150 parts by weight, i.e. 60 parts by mole
Propylene glycol (molecular weight 76) : 61 parts by weight, i.e. 20 parts by mole.

Thus, the amount of the C₃ to C₁₀ aliphatic diol component in the Resin (4) is 49 parts by mole (neopentyl glycol + propylene glycol).

Resin (5):

Terephthalic acid (molecular weight 166) : 664 parts by weight, i.e. 100 parts by mole
Ethylene glycol (molecular weight 62) : 150 parts by weight, i.e. 60 parts by mole
Neopentyl glycol (molecular weight 104) : 166 parts by weight, i.e. 40 parts by mole
Trimethylolpropane (molecular weight 134) : 80 parts by weight, i.e. 15 parts by mole.

Thus, the amount of the C₃ to C₁₀ aliphatic diol component in the Resin (5) is 40 parts by mole (neopentyl glycol).

Resin (6):

Terephthalic acid (molecular weight 166) : 664 parts by weight, i.e. 100 parts by mole
Ethylene glycol (molecular weight 62) : 120 parts by weight, i.e. 48 parts by mole
Polyoxypropylene-(2.2)-2, 2-bis (4-hydroxyphenyl)-propane (molecular weight 358) : 688 parts by weight, i.e. 48 parts by mole
Trimethylolpropane (molecular weight 134) : 80 parts by weight, i.e. 15 parts by mole.

Thus, the amount of the C₃ to C₁₀ aliphatic diol component in the Resin (6) is 0 part by mole.

In sum, JP '393 neither discloses nor suggests polyester resins meeting above-discussed feature (I) and thus, neither discloses nor suggests the present invention.

Claims 16, 18 and 19

Claim 16, as above-amended, is drawn to a toner polyester resin (b1) which contains a neopentyl glycol component in an amount of 60 parts by mole or more with respect to 100 parts by mole of the total carboxylic acid component. If the content of the neopentyl glycol

component is less than 60 parts by mole with respect to 100 parts by mole of the total carboxylic acid component, the resulting toner is inferior with regard to low temperature fixability. This can be clearly seen from the results of Comparative Example 4 in which Resin LS in Toner C11 containing 30 parts by mole of neopentyl glycol was employed ([0219] and Table 12).

JP '027 is silent concerning an amount of neopentyl glycol component to be used. Resin E in Production Example 5 therein ([0054]) uses neopentyl glycol but in an amount of 19 parts by mole with respect to 100 parts by mole of the total acid component (i.e. terephthalic acid and fumaric acid) as seen from the following calculation:

Production Example 5 (Resin E)

Terephthalic acid (molecular weight 166) : 581 g, i.e. 48 parts by mole
Fumaric acid (molecular weight 116) : 447 g, i.e. 52 parts by mole
Polyoxypropylene (2.2) -2, 2-bis (4-hydroxyphenyl) - propane (molecular weight 356)
: 980 g, i.e. 37 parts by mole
Ethylene glycol (molecular weight 62) : 174 g, i.e. 38 parts by mole
Neopentyl glycol (molecular weight 104) : 146 g, i.e. 19 parts by mole.

Thus, JP '027 neither discloses nor suggests the present invention.

JP '548 is also silent concerning what amount of the neopentyl glycol component should be used, but in above-discussed Synthesis Examples 2, 3 and 5 (Table 1), neopentyl glycol was used in an amount of 53 parts by mole with respect to 100 parts by mole of the total acid component. Thus, JP '548 neither discloses nor suggests the present invention.

JP '393 is also silent concerning what amount of the neopentyl glycol component should be used, but in above-discussed Resins (1) to (5), the neopentyl glycol component was used in an amount of 36, 36, 58, 29 and 40, respectively, parts by mole with respect to 100 parts by mole of the total acid component. Thus, JP '393 neither discloses nor suggests the present invention.

For all the above reasons, it is respectfully requested that this rejection be withdrawn.

The rejection of Claims 11-19 under 35 U.S.C. § 102(a) as anticipated by JP 2002-341595 (JP '595) and JP 2003-066653 (JP '653), is respectfully traversed.

Claims 11-15

JP '595 discloses a toner which contains a polyester resin obtained from an aliphatic diol as the main diol component, but does not meet the presently-recited limitations of a linear polyester resin having a mass average molecular weight M_w in a range of 25,000 to 100,000 and a softening temperature in a range of 150 to 220°C. For example, Resin (1) therein ([0151]) and Resin (2) therein ([0152]) are disclosed as linear polyester resins, but as having softening temperatures of 104°C and 105°C, respectively.

JP '653 discloses as linear polyester resins, Resin (1) ([0113]) and Resin (4) ([0116]), but these resins both have a softening temperature of 105°C.

Thus, neither JP '595 nor JP '653 disclose or suggest the present invention.

Claims 16, 18 and 19

Above-discussed linear polyester Resins (1) and (2) of JP '595 contain a neopentyl glycol component, the amount of which can be calculated as follows with respect to 100 parts by mole of the total acid component.

Resin (1):

Naphthalenedicarboxylic acid (molecular weight 216) : 130 parts by weight, i.e. 32 parts by mole
Terephthalic acid (molecular weight 166) : 216 parts by weight, i.e. 68 parts by mole
Cyclohexane dimethanol (molecular weight 144) : 72 parts by weight, i.e. 26 parts by mole
Neopentyl glycol (molecular weight 104) : 104 parts by weight, i.e. 53 parts by mole
Ethylene glycol (molecular weight 62) : 31 parts by weight, i.e. 26 parts by mole
Propylene glycol (molecular weight 76) : 152 parts by weight, i.e. 50 parts by mole.

Resin (2):

Terephthalic acid (molecular weight 166) : 664 parts by weight, i.e. 100 parts by mole

Ethylene glycol (molecular weight 62) : 54 parts by weight, i.e. 22 parts by mole
Propylene glycol (molecular weight 76) : 72 parts by weight, i.e. 26 parts by mole
Neopentyl glycol (molecular weight 104) : 150 parts by weight, i.e. 36 parts by mole.

Thus, JP '595 neither discloses nor suggests a linear polyester resin containing neopentyl glycol component in an amount of 60 parts by mole or more.

Above-discussed Resin (1) of JP '653 contains no neopentyl glycol component.

Above-discussed Resin (4) of JP '653 does contain a neopentyl glycol component, which can be calculated as follows with respect to 100 parts by mole of the total acid component:

Resin (4):

Terephthalic acid (molecular weight 166) : 664 parts by weight, i.e. 100 parts by mole
Ethylene glycol (molecular weight 62) : 54 parts by weight, i.e. 22 parts by mole
Propylene glycol (molecular weight 76) : 152 parts by weight, i.e. 50 parts by mole
Neopentyl glycol (molecular weight 104) : 150 parts by weight, i.e. 36 parts by mole.

Thus, JP '653 neither discloses nor suggests a linear polyester resin containing neopentyl glycol component in an amount of 60 parts by mole or more.

Thus, neither JP '595 nor JP '653 disclose or suggest the present invention.

For all the above reasons, it is respectfully requested that this rejection be withdrawn.

The rejection of Claims 11-19 under 35 U.S.C. § 102(b) as anticipated by US 5,409,989 (Ito et al) and US 5,153,301 (Tajiri et al), is respectfully traversed.

Claims 11-15

Ito et al discloses a toner resin obtained by suspension polymerization of 5-40% by weight of a saturated polyester, 60-95% by weight of a vinyl monomer and 0.1-1% by weight of a divinyl monomer, but is silent regarding both a C₃ to C₁₀ aliphatic diol component in an amount within a range of 10 to 30.5 parts by mole with respect to 100 parts by mole of the total acid component, and the saturated polyester having a mass average molecular weight of 25,000 to 100,000. Ito et al discloses in Tables 1-1 and 2-1 polyester resins of a weight

average molecular weight of 25,000, but these resins are polyester copolymers obtained from terephthalic acid, polyoxypropylene(2.4)-2,2-bis(4-hydroxyphenyl)propane and ethylene glycol (see Example 1 and Comparative Example 2) and do not contain a C₃ to C₁₀ aliphatic diol component. Ito et al further discloses in Table 4-1 a polyester resin of a weight average molecular weight of 40,000 (Comparative Example 4), but this resin has the same composition as in the resin of Example 1 and therefore does not contain a C₃ to C₁₀ aliphatic diol component.

Tajiri et al discloses a toner polyester resin comprising an aliphatic diol component in an amount of 20 to 80 parts by mole with respect to 100 parts by weight of the total carboxylic acid component and having a weight average molecular weight of 3,000 to 20,000 and a softening temperature of 70 to 130°C. Thus, Tajiri et al teaches away from the presently-claimed invention.

Claims 16, 18 and 19

Ito et al has been discussed above. In addition, Ito et al is silent concerning the content of a neopentyl glycol component.

Tajiri et al discloses the following polyester resins containing a neopentyl glycol component in Table 1-2, as Resin G and Resin H:

Resin G:

Terephthalic acid: 50 parts by mole
Isophthalic acid: 50 parts by mole
Polyoxypropylene (2.3)-2, 2-bis(4-hydroxyphenyl)-propane: 45 parts by mole
Ethylene glycol: 11 parts by mole
Neopentyl glycol: 44 parts by mole.
Weight average molecular weight: 9,000.

Resin H:

Terephthalic acid: 51 parts by mole

Isophthalic acid: 49 parts by mole
Polyoxypropylene (2.3) -2, 2-bis(4-hydroxyphenyl)-propane: 40 parts by mole
Neopentyl glycol: 60 parts by mole.
Weight average molecular weight: 11,000.

Thus, Resin G has a content of the neopentyl glycol component of 44 parts by mole, which does not fall within the recited range, and Resin H has a mass average molecular weight of 11,000, which does not fall within the recited range.

In sum, neither Ito et al nor Tajiri et al disclose or suggest the present invention.

For all the above reasons, it is respectfully requested that this rejection be withdrawn.

The rejection of Claims 1-23 under 35 U.S.C. § 102(b) as anticipated by JP 2002-287427 (JP '427)¹ is respectfully traversed.

Claim 1

Claim 1 is drawn to a toner resin composition comprising a linear polyester resin (A) containing a C₃ to C₁₀ aliphatic diol component and having a softening temperature in a range of 150 to 220°C and a linear polyester resin (B) containing a C₃ to C₁₀ aliphatic diol component which differs from said linear polyester resin (A), the (parts by mole of the C₃ to C₁₀ aliphatic diol component in the linear polyester resin (B))/(parts by mole of the C₃ to C₁₀ aliphatic diol component in the linear polyester resin (A)) in the case of designating the total acid component of the resin as 100 parts by mole being in a range of 0.5 to 10.

The invention of Claim 1 can be characterized as having three features (III) through (V):

(III) two different polyester resins are used in combination,

(IV) the mole ratio of the C₃ to C₁₀ aliphatic diol components are maintained to a constant value,

¹ JP '427 has not been made of record. The Examiner is respectfully requested to make it of record on a Form PTO 892 and include a copy thereof with the next Office communication.

(V) the resin composition comprises linear polyester resins.

The combination of features (III) through (V) is particularly important, and the above-discussed problems of the prior art are not as well addressed when any one of these features is not satisfied.

JP '427 discloses a toner for developing electrostatic images comprising a higher softening temperature polyester having a softening temperature of 120 to 160°C and a lower softening temperature polyester having a softening temperature of 75 to 120°C, which polyesters have been obtained by using an alcohol component consisting essentially of aliphatic alcohols. However, JP '427 describes that a crosslinked resin is preferred as the higher softening temperature polyester ([0011]), and crosslinked resins containing a trimellitic acid component were in fact employed as the higher softening temperature polyester in all of the examples listed in Table 2, as is seen from Table 1.

Such toner resin compositions containing crosslinked resins as the higher softening temperature polyester, which do not satisfy the above-mentioned feature (V), cannot successfully address the above-discussed problems of the prior art.

In support thereof, the following comparative working example, labeled Referential Comparative Example 4, was prepared.

Referential Comparative Example 4 was carried out using the procedures described for the preparation of Toner 3 of Example 1 herein ([0201]-[0202] and Table 3) except that Resin HL was employed instead of Resin HC. The results of evaluation of the obtained toner are shown in Table D below:

Table D

| | | Referential Example 4 |
|--|--|---------------------------|
| | Ratio of mixture of resin (parts by mass) | Resin HL:resin LC = 20:80 |

| | | |
|------------------|---------------------|---|
| Resin properties | Fixability | G |
| | Offset resistance | G |
| | Blocking resistance | G |
| | Gloss | P |

As demonstrated by Referential Comparative Example 4, if the polyester resin composition contains a nonlinear polyester, the gloss of the resulting toner is poor.

JP '427 is silent concerning a toner resin composition comprises only linear polyesters.

Claims 2-10

The invention of Claim 2 includes a vinyl-based resin (C) in addition to the components recited in Claim 1, and therefore also distinguishes JP '427. The invention of Claims 3-10, which claims depend on Claims 1 or 2, likewise distinguish JP '427.

Claims 11-15

As discussed above, JP '427 is silent concerning the use of a linear polyester as the higher softening temperature polyester or the use of a linear polyester having a softening temperature of 150°C or higher. Therefore, the invention of these claims distinguishes JP '427.

Claims 16, 18 and 19

JP '427 discloses the following linear polyester resins in Table 1 as Resin F and Resin G and the amounts of the neopentyl glycol component in these resins can be calculated as follows with respect to 100 parts by mole of the total acid component:

Resin F:

Isophthalic acid: 80 moles, i.e. 99.4 parts by mole
Fumaric acid: 0.5 mole, i.e. 0.6 part by mole
Propylene glycol: 50 moles, i.e. 62.1 parts by mole
Diethylene glycol: 20 moles, i.e. 24.8 parts by mole
Neopentyl glycol: 30 moles, i.e. 37.3 parts by mole.

Resin G:

Isophthalic acid: 60 moles, i.e. 60 parts by mole
Fumaric acid: 40 moles, i.e. 40 part by mole
Propylene glycol: 50 moles, i.e. 50 parts by mole
Ethylene glycol: 20 moles, i.e. 20 parts by mole
Dipropylene glycol: 10 moles, i.e. 10 parts by mole
Neopentyl glycol: 20 moles, i.e. 20 parts by mole.

Thus, Resin F and Resin G have a content of the neopentyl glycol component of less than 60 parts by mole and JP '427 is silent concerning a linear polyester resin containing the neopentyl glycol component in an amount of 60 parts by mole or more.

Claims 20-23

As discussed above, JP '427 is silent concerning the use of a linear polyester as the resin with a high softening temperature such as of 150 to 220°C. Thus, JP '427 is silent concerning the use of the polyester resin (X) as defined in the present Claim 20. Therefore, the invention of the present Claim 20 as well as Claims 21-23 distinguishes JP '427.

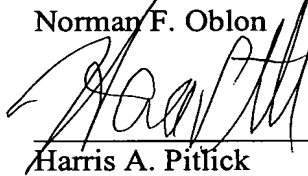
For all the above reasons, it is respectfully requested that this rejection be withdrawn.

Application No. 10/539,798
Reply to Office Action of July 7, 2006

All of the presently-pending claims in this application are now believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

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